

What is claimed is:

1. A data logging system, comprising:
5 an implantable medical device having a current source for transmitting potential signals modulated with encoded data to an external data logging device; and,
an external data logging device for affixation to a patient having incorporated therein a data communications interface for demodulating potential signals sensed at a skin surface location to extract encoded data therefrom, and circuitry for storing the
10 encoded data in a data logging storage medium.
2. The system of claim 1 wherein the implantable medical device is a cardiac device with a sensing channel for sensing cardiac electrical activity and further wherein data reflective of the sensed cardiac activity can be encoded and transmitted to
15 the external data logging device.
3. The system of claim 2 wherein the potential signals are transmitted in the form of a carrier waveform digitally modulated with the digitally encoded data by varying the amplitude of the carrier waveform.
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4. The system of claim 2 wherein the potential signals are transmitted in the form of a carrier waveform digitally modulated with the digitally encoded data by varying the frequency of the carrier waveform.
- 25 5. The system of claim 2 wherein the potential signals are transmitted in the form of a digital pulse train modulated with the digitally encoded data by varying the frequency of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.

6. The system of claim 2 wherein the potential signals are transmitted in the form of a digital pulse train modulated with the digitally encoded data by varying the width of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.

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7. The system of claim 2 wherein the potential signals are transmitted in the form of a digital pulse train modulated with the digitally encoded data by varying the position of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.

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8. The system of claim 2 wherein the implantable cardiac device comprises circuitry for performing an impedance measurement related to a physiological variable by injecting current between two electrodes from a constant current source and further wherein the constant current source is used for transmitting potential signals modulated with digitally encoded data to the external data logging device

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9. The system of claim 2 wherein the data logging storage medium of the external data logging device is removable.

20 10. The system of claim 9 wherein the data logging storage medium is a flash ROM.

11. A method for data logging comprising:
sensing cardiac electrical activity with an implanted cardiac device;
25 encoding data reflective of the sensed cardiac activity;
generating potential signals modulated with the encoded data by operating a current source to cause corresponding electrical potentials that can be sensed at a skin surface location;

30 receiving and demodulating sensed potential signals at a skin surface location to derive the encoded data therefrom; and,

storing the derived encoded data in a data logging storage medium of an external data logging device.

12. The method of claim 11 further comprising removing and replacing the data logging storage medium at periodic intervals.

13. The method of claim 11 further comprising transmitting the potential signals in the form of a carrier waveform digitally modulated with the digitally encoded data by varying the amplitude of the carrier waveform.

14. The method of claim 11 further comprising transmitting the potential signals in the form of a carrier waveform digitally modulated with the digitally encoded data by varying the frequency of the carrier waveform.

15. The method of claim 11 further comprising transmitting the potential signals in the form of a digital pulse train modulated with the digitally encoded data by varying the frequency of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.

16. The method of claim 11 further comprising transmitting the potential signals in the form of a digital pulse train modulated with the digitally encoded data by varying the width of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.

17. The method of claim 11 further comprising transmitting the potential signals in the form of a digital pulse train modulated with the digitally encoded data by varying the position of the pulses and amplitude modulating a carrier waveform with the modulated pulse train.

18. The method of claim 11 further comprising performing an impedance measurement related to a physiological variable by injecting current between two electrodes from a constant current source and using the constant current source for transmitting potential signals modulated with encoded data to the external data logging
5 device.